

Title V

Model General Permit Template

SERIES 1 INDUSTRIAL PROCESS COOLING TOWERS

Template # SJV-CT-1-0

**wooden or non-wooden industrial process cooling tower
operated with chromium-based water treatment chemicals on or after September
8, 1994
is a major source or is an integral part of a facility that is a major source as
defined in Rule 2520, 3.19**

This template is designed to streamline the Title V permitting process for industrial process cooling towers meeting the above qualifications. Applicants for Title V permits choosing to use this template will only have to complete the enclosed template qualification form and submit it with their Title V application.

San Joaquin Valley Unified Air Pollution Control District

Final

Title V Model General Permit Template

INDUSTRIAL PROCESS COOLING TOWERS TEMPLATE

Template No: SJV-CT-1-0

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SAN JOAQUIN VALLEY UNIFIED AIR POLLUTION CONTROL DISTRICT

TITLE V GENERAL PERMIT TEMPLATE SJV-CT-1-0

ENGINEERING EVALUATION

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I. Purpose

The purpose of the proposed template is to streamline the Title V permitting process by identifying the federally applicable requirements for industrial process cooling towers and to establish permit conditions which will ensure compliance with such requirements. These conditions will be incorporated into the Title V permit of any facility choosing to make use of the template.

II. Template Applicability

The template applies to any new or existing industrial process cooling tower (wooden or non-wooden) which is:

Operated with chromium-based water treatment chemicals on or after September 8, 1994, and

Is a major source or is an integral part of a facility that is a major source as defined in Rule 2520, 3.19.

The applicability of this template can best be established by answering the questions on the Template Qualification Form attached as Appendix A.

III. Applicable Requirements

Units may be subject to “federally enforceable “ requirements as well as requirements that are enforceable by the “District-only.” Federally enforceable requirements will be enforceable by the EPA, the public and the District through Title V permit conditions identified as federally enforceable. District-only requirements represent local or state regulations for which the EPA has no direct enforcement authority. The final Title V permits issued by the District will contain both federally enforceable and District-only requirements.

District-only requirements are not addressed in this template except for those used in streamlining of multiple requirements (see discussion in section IV). This template does not address compliance with all federally enforceable requirements. Generally, requirements not addressed by this template are those that require a source specific analysis, or are covered by other templates. The applicable requirements are categorized in Table 1, Applicable Requirements, as follows:

Table 1. Applicable Requirements

Rule Category	Rule/Regulation	Citation	Description
A	SJVUAPCD Reg. II	2520, 9.4.2 and 9.5.2	Periodic Monitoring and Recordkeeping
A	SJVUAPCD Reg. IV	4201	Particulate Matter Concentration
A	SJVUAPCD Reg. IV	4202	Particulate Matter -Emission Rate
A	SJVUAPCD Reg. VII	7012	Hexavalent Chromium - Cooling Towers
A	NESHAP Subpart Q	40 CFR 63.400	NESHAPs for Industrial Process Cooling Towers
B	SJVUAPCD Reg. II	2201	New Source Review Rule
B	SJVUAPCD Reg. II	2520	Federally Mandated Operating Permits
C	SJVUAPCD Reg. I	1080	Continuous Emissions Monitoring
C	SJVUAPCD Reg. I	1081	Source Sampling

Category “A” rules contain requirements that are directly applicable to the qualifying units; compliance with these applicable requirements will be demonstrated in this engineering evaluation and assured by the template permit conditions. In section IV, Compliance, the federally-enforceable requirements from category “A” rules are listed with a discussion of how compliance with these requirements is achieved.

Category “B” rules contain federally enforceable requirements that were not addressed in this template. These units may not be all of the federally enforceable requirements in this template. Requirements from these rules must be addressed by the applicant outside of this template within the Title V application Compliance Plan form (TVFORM-004). Category “B” listing is included in this table as an informational item to assist applicants in this effort.

Category “C” rules contain requirements which have been determined not to be applicable to qualifying units. A permit shield is proposed for the category “C” rules. An explanation of the determination of non-applicability of category “C” rules is included in this evaluation.

IV. Compliance

This section contains a discussion of how compliance is assured with each requirement addressed in this template. Some requirements have been “streamlined”, according to the procedures in EPA’s White Paper #2 for Improved Implementation of the Part 70 Operating Permits Program (March 5, 1996).

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District Rule 2520, 9.4.2 and 9.5.2

Section 9.4.2 requires that periodic monitoring be performed if none is associated with a given emission limit to assure compliance. However, periodic monitoring consisting of testing the circulating water once every six months to determine the Cr^{+6} concentration is required by Rule 7012 and therefore will be supported by permit conditions #1 and #2. Testing may be discontinued, and an exemption sought pursuant to section 4.1 when two consecutive required tests show Cr^{+6} concentrations less than 0.15 mg/l.

Section 9.5.2 requires all records be maintained for at least five years. The proposed requirement also requires maintaining circulating water test results for at least 5 years. Template permit condition #3 will assure that all records be maintained for at least five years.

District Rule 4201, 3.1

District Rule 4201 section 3.1 limits the emission of total suspended particulate matter (PM) to 0.1 grain/dry standard cubic foot of gas. Compliance with this limit may be shown as follows:

$$\left(\frac{0.019 \text{ lb } PM_{10}}{10^3 \text{ gal}} \right) \left(\frac{7,000 \text{ grain}}{\text{lb}} \right) (0.75) = \frac{0.099 \text{ grain}}{\text{dscf}} < \frac{0.1 \text{ grain}}{\text{dscf}}$$

where:

$$\frac{0.019 \text{ lb } PM_{10}}{10^3 \text{ gal}} = \text{AP42 emission factor for } PM_{10} \text{ from wet cooling towers (table 13.4-1)}$$

$$(0.75) = \text{ratio of cooling tower water flow rate to cooling tower air flow rate (gal/dscf)}$$

Compliance with District Rule 4201, 3.1 is assured for all cooling towers covered by this template. Therefore, no testing, monitoring or recordkeeping will be required. A permit condition will be added to assure compliance with this rule. (See template permit condition #4)

District Rule 4202, 4.0

District Rule 4202 section 4.0 limits the emission of PM based on a process weight rate in accordance with the following formula:

$$E = 3.59 P^{0.62} \quad \text{for } P \text{ less than or equal to 30 tons/hr}$$

$$E = 17.31 P^{0.16} \quad \text{for } P \text{ greater than 30 tons/hr}$$

where: E = Emission in lbs/hr
 P = Process weight rate in tons/hr

Compliance with this emission rate may be shown as follows:

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$$P = \left(\frac{43,000 \text{ gal}}{\text{min}} \right) \left(\frac{\text{ft}^3}{7.48 \text{ gal}} \right) \left(\frac{62.34 \text{ lb}}{\text{ft}^3} \right) \left(\frac{\text{ton}}{2000 \text{ lb}} \right) \left(\frac{60 \text{ min}}{\text{hr}} \right) = \frac{10,751 \text{ tons}}{\text{hr}}$$

Allowable emission rate, E:

$$E = 359 P^{0.62} \Rightarrow E = 359 \left(\frac{10,751 \text{ tons}}{\text{hr}} \right)^{0.62} = \frac{1,134 \text{ lbs}}{\text{hr}}$$

Actual emission rate:

$$\left(\frac{0.019 \text{ lb } PM_{10}}{10^3 \text{ gal}} \right) \left(\frac{43,000 \text{ gal}}{\text{min}} \right) \left(\frac{60 \text{ min}}{\text{hr}} \right) = \frac{49.02 \text{ lbs}}{\text{hr}} \ll \frac{1,134 \text{ lbs}}{\text{hr}}$$

Compliance with District Rule 4202, 4.0 is assured for all cooling towers covered by this template. Therefore, no testing, monitoring or recordkeeping will be required.

District Rule 7012, 5.2 and 40 CFR 63 Subpart Q

The following analysis shall demonstrate that District Rule 7012 hexavalent chromium (Cr^{+6}) concentration limit of 0.15 mg/l is more stringent than 40 CFR 63.400 concentration limit of 0.5 mg/l. Streamlining procedures, as documented in the following steps, are used to substitute the proposed set of requirements for the otherwise applicable requirements.

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Step 1. Side-by-side Comparison of emission limits

Cr ⁺⁶ Concentration			
CITATION:	District Rule 7012, 5.2	40 CFR 63 Subpart Q	Proposed Requirements
WORK PRACTICE STANDARDS:	No chromate containing chemical shall be added to cooling tower circulating water	No chromium based water treatment chemical shall be used in any cooling tower circulating water	No chromate containing chemical shall be added to cooling tower circulating water
Cr ⁺⁶ CONCENTRATION LIMIT:	Less than or equal to 0.15 mg/l	Less than or equal to 0.5 mg/l	Less than or equal to 0.15 mg/l
MONITORING:	Cr ⁺⁶ testing every 6 months until compliance with the 0.15 mg/l limit is demonstrated on at least 2 consecutive occasions, after which an exemption from testing may be obtained from the District.	None is required. However, 2 notifications (initial & compliance status) are required.	Cr ⁺⁶ testing every 6 months until compliance with the 0.15 mg/l limit is demonstrated on at least 2 consecutive occasions, after which an exemption from testing may be obtained from the District.
RECORDKEEPING:	Maintain records of all circulating water tests for at least 2 years.	Maintain copies of initial & final compliance status for at least 5 years.	Maintain records of all circulating water tests for at least 5 years.
REPORTING:	Annually submit to the District the results of all circulating water tests, the name & address of the lab. Performing the test, and the dates the samples were collected and analysis was performed.	None is required.	Annually submit to the District the results of all circulating water tests, the name & address of the lab. Performing the test, and the dates the samples were collected and analysis was performed.
TEST METHODS:	American Public Health Association Method 312B.	EPA Publication SW-846, Method 7196.	American Public Health Association Method 312B.

Step 2. Select most stringent emission limit or performance standard

The requirement of 0.15 mg/l Cr⁺⁶ concentration in the cooling tower circulating water is the most stringent concentration standard allowed by District Rule 7012, and therefore is the proposed requirement.

Step 3. Conditions ensuring compliance with applicable requirements

The units qualifying to use this template shall be required by permit condition to comply with the streamlined Cr⁺⁶ emission limit and associated monitoring, recordkeeping, reporting and testing (See template permit conditions #1,#2, #3 & #5).

Step 4. Certify compliance

By using this template as part of the title V application, the applicant is certifying compliance with all conditions required as part of the template.

Step 5. Compliance schedule for new monitoring requirements

Not applicable.

Step 6. Request for permit shield

By using this template the applicant is requesting a permit shield from the requirements of District Rule 7012 and the 40 CFR 63.400 Subpart Q (See template permit condition #6).

V. Permit Shield

A permit shield legally protects a facility from enforcement of the shielded regulations when a source is in compliance with the terms and conditions of the Title V permit. Compliance with the terms and conditions of the Title V permit is considered compliance with all applicable requirements upon which those conditions are based, including those that have been subsumed. A permit shield is requested in template permit conditions #6 through #8.

A permit shield will be granted for SJVUAPCD District Rule 1080 because units qualifying to use this template are not subject to any CEM requirements. A permit shield is granted from this requirement in template permit condition #7.

A permit shield will be granted for SJVUAPCD District Rule 1081 because units qualifying to use this template are subject only to water quality monitoring and testing. Rule 1081 describes procedures for isokinetic source sampling. As a result, units qualifying to use this template are exempt from the procedures described in Rule 1081. A permit shield is granted from this requirement in template permit condition #8.

VI. Permit Conditions

The following conditions will be incorporated into the Title V permit of any facility choosing to make use of template #SJV-CT-1-0:

1. The operator shall test the circulating water at least once every six months to determine the concentration of hexavalent chromium (Cr^{+6}). The District shall be

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notified 48 hours in advance of any sampling of cooling water for testing and allow the District to take a simultaneous sample if requested. Testing may be discontinued and an exemption sought when two consecutive required tests show Cr^{+6} concentrations less than 0.15 mg/l. [District Rule 7012, 6.3.2, 6.4.1.2, 6.4.2 and 6.4.3]

2. Compliance with the hexavalent chromium concentration limit shall be determined by American Public Health Association Method 312B. [Rule 7012, 6.3.1 and 6.3.2]

3. The operator shall maintain records of all circulating water tests performed. Records shall be maintained for at least 5 years and shall be made available to the District upon request. [District Rule 2520, 9.5.2 and 40 CFR 63.406]

4. Particulate matter emissions shall not exceed 0.1 grain/dscf of gas at operating conditions. [District Rule 4201,3.1]

5. The operator shall annually submit to the District the results of all circulating water tests, the name and address of the laboratory performing the tests, and the dates the samples were collected and analysis was performed. [District Rule 7012, 6.2.2]

6. Compliance with the permit conditions in the Title V permit shall be deemed compliance with the requirements of SJVUAPCD Rule 7012 and 40 CFR 63 Subpart Q. A permit shield is granted from these requirements. [District Rule 2520, 13.2]

7. The requirements of SJVUAPCD District Rule 1080 do not apply to this source because units qualified to use this template are not subject to any CEM requirements. A permit shield is granted from these requirements. [District Rule 2520, 13.2]

8. The requirements of SJVUAPCD District Rule 1081 do not apply to this source because units qualified to use this template are subject only to water quality monitoring and testing. A permit shield is granted from the requirements of this rule. [District Rule 2520, 13.2]

APPENDIX A

EPA COMMENTS
FOR
TEMPLATE #SJV-CT-1-0

EPA COMMENTS

The EPA's comments regarding tank templates are encapsulated below followed by the District's response. A copy of the EPA's 12/3/96 letter is available at the District.

The District had submitted the oil field sumps, fugitives, and industrial process cooling towers to the EPA for review. The following statement was only comment made by the EPA to the District concerning the cooling tower templates.

"...We also appreciate the opportunity to comment on the proposed template for industrial process cooling towers. Due to resource constraints, we have not reviewed this template and therefore are not providing comments. Please note that if the permit terms in the industrial process cooling tower template are later found to require corrective steps (including, but not limited to, reopening the permit for cause), the expiration of both EPA's review period and the public petition period without EPA objection does not compromise the Agency's authority to take such measures."

APPENDIX B

TEMPLATE QUALIFICATION FORM
FOR
TEMPLATE #SJV-CT-1-0

Title V General Permit Template Qualification Form

District permit # _____

Please answer the questions in the table below. An industrial process cooling tower (unit) which meets the criteria of this table is qualified to use this template as part of a Title V application. To use this template, remove this sheet and attach to application.

Yes	No	Description of Qualifying Units
		Have hexavalent chromium (Cr^{+6}) compounds ever been added to the cooling tower circulating water? [40CFR64.400(a)] If "no", STOP - you cannot use this template; otherwise, continue to next question.
		Is the unit a cooling device commonly known as an evaporative cooler or swamp cooler, whose operating principle is based on cooling air which subsequently is used to cool a building, residence, or other occupied area? [District Rule 7012, 4.2] If "yes", STOP - you cannot use this template; otherwise, continue to next question.
		Is the unit operated with chromium-based water treatment chemicals on or after September 8, 1994? [40 CFR 63.403(c)] If "no", STOP - you cannot use this template; otherwise, continue to next question.
		Is the ratio of cooling water flow rate to cooling air flow rate in gallons per dry standard cubic feet less than or equal to 0.75? [District Rule 4201] If "no", STOP - you cannot use this template; otherwise, continue to next question.
		Is the unit a cooling tower in which the circulating water is completely contained and is not exposed to the atmosphere? [District Rule 7012, 4.3] If "yes", STOP - you cannot use this template; otherwise, you may use this template.

Based on information and belief formed after reasonable inquiry: 1) the information on this form is true, accurate, and complete, and 2) the facility certifies compliance with this template's permit conditions:

Signature of Responsible Official

Date

Name of Responsible Official (Please print)